Other pelagic active hunters

The definition of active hunters this study uses is described as predators with high mobility to locate and capture prey (Mousing et al., 2023). This article specifies to only the pelagic active hunters within the North Sea and Wadden Sea, including species such as Eel (*Anguilla anguilla*), Garfish (*Belone belone*), Lumpsucker fish (*Cyclopterus lumpus*) and other pelagic active hunters (Clausen et al., 2017). This article provides information about the intermediate trophic levels of which the species feed on zooplankton and phytoplankton and are main prey to the top-predators of the North Sea and Wadden Sea. In other words, pelagic active hunters transfer the biomass of the lower trophic levels (plankton) to the higher trophic levels (larger fish, marine mammals and birds) (Clausen et al., 2017; Mousing et al., 2023). This study found significantly more pelagic active hunters that inhabit the North Sea than in the Wadden Sea (Dickey-Collas et al., 2014). Most pelagic active hunters within this report are considered migratory in their behaviour, and no specific non-native species were found (Clausen et al., 2017; Dickey-Collas et al., 2014; Mousing et al. 2023).

History/population trends

According to Fauchald et al. (2011), marine pelagic ecosystems are often characterized by highly diverse upper and lower trophic levels and a less diverse intermediate level, a so-called “wasp-waist” ecosystem. The intermediate level, consisting of mainly forage fish species, influences the lower trophic levels by top-down and upper trophic levels by bottom-up control (Fauchald et al., 2011). Forage fish species are small or intermediate-sized pelagic species that feed on zooplankton and phytoplankton and are the primary food source for many marine predators, including mammals, seabirds and larger fish (Pikitch et al., 2012). Around 1993, the productivity of North Sea forage fish decreased significantly due to a decline in the presence of the calanoid copepod *Calanus finmarchicus*, which is positively correlated with forage fish (Clausen et al., 2017). According to Clausen et al. (2017), the decrease of productivity was best visible in the average length and weight of the individuals. However, Shepard et al. (2014) found that the forage fish biomass in the North Sea has remained relatively stable from 1983 to 2012. This stability may indicate that any productivity changes among the forage fish stocks have been effectively counteracted by appropriate management action in commercial fisheries (Dickey-Collas et al., 2014). However, as a consequence of the current global warming situation, rising seawater temperatures may force several forage fish species to migrate north to find new habitats, since areas with lower temperatures are more conductive to their survival and reproduction (Zeng, 2020). This possibly leads to empty fishing nets and no economical profit for small fisheries in the North Sea (Zeng, 2020).

Miscellaneous

- European eel has been listed as Critically Endangered on the International Union for the Conservation of Nature (IUCN) Red List since 2008 (ICES, 2024).

Diet

- Zooplankton (Fauchald et al., 2011; Mousing et al., 2023)
- Small fish (Fauchald et al., 2011; Mousing et al., 2023)
- Bivalves (Fauchald et al., 2011; Mousing et al., 2023)
- Crustaceans (Fauchald et al., 2011; Mousing et al., 2023)
- Annelida (Fauchald et al., 2011; Mousing et al., 2023)
- Other detritivores (Fauchald et al., 2011; Mousing et al., 2023)
- Starfish (Fauchald et al., 2011; Mousing et al., 2023)
- Cephalopods (Fauchald et al., 2011; Mousing et al., 2023)
- Other ambush hunters (Fauchald et al., 2011; Mousing et al., 2023)
- Flatfish (Fauchald et al., 2011; Mousing et al., 2023)
- Other demersal active hunters (Fauchald et al., 2011; Mousing et al., 2023)

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